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AMENDMENTS TO THE CLAIMS

## CLAIMS:

- 5        60. (New) A system comprising a device for detection and measurement in any food or food substance for concentrations of acrylamides, wherein a sample of food or food substance is collected and mixed into a food or food substance dissolving solution, thereby freeing any bound acrylamide within said food or food substance and subsequently placing said solution onto a substrate of said device;
- 10        said substrate comprising an enzyme that along with a co-enzyme and heat or light or both heat and light together with a metal or catalyst facilitates conversion of acrylamide to acrylonitrile, and wherein a detection system is employed that measures acrylonitrile concentrations.
- 15        61. (New) The system as in Claim 60, wherein said detection system measures acrylonitrile concentrations corresponding to acrylamide concentrations comprising; an infrared (IR) sensor to measure concentrations of acrylamides from said food or food substance dissolving solution subsequently converted to acrylonitrile concentrations by identifying an IR absorption peak of a carbon-nitrogen triple bond
- 20        at a wavelength of  $2250\text{ cm}^{-1}$  within said solution.
- 25        62. (New) The system as in Claim 61, wherein said system also comprises a display indicating a value of said acrylonitrile concentrations corresponding to acrylamide concentrations with a scale that is representative of the correspondence of said concentrations of acrylamides in said solution.
- 30        63. (New) The system as in Claim 61, wherein testing for acrylamide concentrations using said device is completed by a user, such that said device is also suited for home, office, or laboratory use.
64. (New) The system as in Claim 61, wherein said enzyme is nitrilase.
65. (New) The system as in Claim 61, wherein said enzyme is nitrilase from *Nocardia*

rhodochrous LL100-21.

66. (New) The system as in Claim 61, wherein said enzyme is formadise.

5 67. (New) The system as in Claim 61, wherein said system and said substrate is maintained in a biochip.

68. (New) The system as in Claim 61, wherein said co-enzyme is used such that its reaction product is coupled to a colorimetric change wherein said colorimetric change  
10 utilizes chromophores.

69. (New) The system as in Claim 68, wherein said chromophores consist of bromophenol blue, bromocresol green, and chlorophenol red.

15 70. (New) A system comprising a device for detection and measurement in any food or food substance for concentrations of acrylamides, wherein a sample of food or food substance is collected and mixed into a food or food substance dissolving solution, thereby freeing any bound acrylamide within said food or food substance and subsequently reacting said solution with an amino acid of a protein such that  
20 production of monoclonal antibodies will occur and;

coupling said antibodies with a colored dye substance such that said colored dye substance will indicate concentration of antibodies that bind to said protein, and wherein said detection system is optionally combined with a biochip for home, office,  
25 or laboratory use.

71. (New) A system comprising a device for detection in any food or food substance to detect and measure concentrations of acrylamides wherein a sample of food or food substance is collected and mixed into a food or food substance dissolving solution, thereby freeing any bound acrylamide within said food or food substance and  
30 subsequently reacting said solution with added DNA sequences or proteins in a cell through which light passes; and subsequently measuring light intensity of light passing through said cell as a function of acrylamide concentration, wherein said light intensity decreases as the concentration of acrylamide increases.

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Respectfully Submitted,

By:

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